AMENDMENTS TO THE CLAIMS

1. (Original) A method of treating cardiovascular disease in a medical patient, comprising:

generating a sensor signal indicative of a fluid pressure within a left atrium of a heart;

delivering an electrical stimulus to a location in the heart, said electrical stimulus delivered based at least in part on said sensor signal;

generating a processor output indicative of a treatment to a signaling device, wherein said processor output is based at least in part on the sensor signal; and

providing at least two treatment signals to said medical patient,

wherein the at least two treatment signals are distinguishable from one another by the patient;

wherein the at least two treatment signals are indicative of a therapeutic treatment; and

wherein the at least two treatment signals are based at least in part on said processor output.

2. (Original) The method of Claim 1, wherein the step of delivering an electrical stimulus further comprises using a pacemaker.

3. (Original) The method of Claim 1, wherein the step of delivering an electrical stimulus further comprises using defibrillator.

4. (Original) The method of Claim 1, further comprising providing an external patient advisory module.

5. (Original) The method of Claim 4, wherein the step of providing an external patient advisory module comprises providing an external telemetry device, a signal processor, and the signaling device.

6. (Currently amended) The method of Claim 4, wherein the step of providing the external patient advisory module ~~further comprises~~ further comprises providing a barometer configured to sense atmospheric pressure.

7. (Original) The method of Claim 1, wherein the step of generating a sensor signal further comprising using a pressure transducer.

8. (Original) The method of Claim 1, wherein the step of generating a sensor signal further comprises using a sensor in pressure communication with the left atrium.

9. (Original) The method of Claim 1, wherein the step of generating a sensor signal further comprises using a sensor located in the atrial septum.

10. (Original) The method of Claim 1, wherein the step of generating a sensor signal further comprises using a sensor located in the left atrium.

11. (Original) The method of Claim 1, wherein the step of generating a sensor signal further comprises using a sensor located in a location selected from the group consisting of one or more of the following: a right atrial appendage, a left atrial appendage, a pulmonary artery, a pulmonary vein, a pulmonary capillary wedge position, a right ventricle, a left ventricle, a right atrium, an intrathoracic space, and a central vein.

12. (Original) The method of Claim 1, wherein the step of generating a sensor signal further comprises using a sensor that comprises a low compliance titanium foil.

13. (Original) The method of Claim 1, wherein the step of generating a sensor signal further comprises using a sensor that comprises at least one silicon strain gauge.

14. (Original) The method of Claim 1, wherein the step of generating a sensor signal further comprises generating a sensor signal indicative of a central venous blood pressure or a peripheral arterial blood pressure.

15. (Original) The method of Claim 1, wherein the step of generating a sensor signal further comprises generating a sensor signal indicative of a left atrial pressure.

16. (Original) The method of Claim 1, wherein the step of generating a sensor signal further comprises generating a sensor signal indicative of a parameter of a left atrial pressure.

17. (Original) The method of Claim 16, wherein the step of generating a sensor signal indicative of a parameter of left atrial pressure comprises generating a sensor signal indicative of a parameter of left atrial pressure, wherein the parameter of left atrial pressure is selected from the group consisting of one or more of the following: mean left atrial pressure, temporally filtered left atrial pressure, heart rate, respiratory variation of left atrial pressure, and respiration rate.

18. (Original) The method of Claim 16, wherein the step of generating a sensor signal indicative of a parameter of left atrial pressure comprises generating a sensor signal indicative of a parameter of left atrial pressure, wherein the parameter of left atrial pressure is based upon at least one wave selected from the group consisting of one or more of the following: an a wave, a v wave, and a c wave.

19. (Original) The method of Claim 16, wherein the step of generating a sensor signal indicative of a parameter of left atrial pressure comprises generating a sensor signal indicative of a parameter of left atrial pressure, wherein the parameter is selected from the group consisting of one or more of the following: a wave amplitude, a waveform rate of ascent, a waveform rate of descent, timing of a wave feature with respect to a cardiac cycle, timing of a wave feature with respect to another wave feature, time difference between an a wave and a c wave, time difference between an a wave and a v wave, and time difference between a v wave and a c wave.

20. (Original) The method of Claim 16, wherein the step of generating a sensor signal indicative of a parameter of left atrial pressure comprises generating a sensor signal indicative of a parameter of left atrial pressure, wherein the parameter is determined based upon at least one descent selected from the group consisting of one or more of the following: an x descent, an x' descent, and a y descent.

21. (Original) The method of Claim 16, wherein the step of generating a sensor signal indicative of a parameter of left atrial pressure comprises generating a sensor signal indicative of a parameter of left atrial pressure, wherein the parameter is determined based upon a parameter signal selected from the group consisting of one or more of the following: a descent amplitude, a descent rate of ascent, a descent rate of descent, timing of a descent feature with respect to a cardiac cycle, timing of a descent feature with respect to another wave feature, time difference between an x descent and an x' descent, time difference between an x descent and a y descent, and time difference between an x' descent and a y descent.

22. (Original) The method of Claim 16, wherein the step of generating a sensor signal indicative of a parameter of left atrial pressure comprises generating a sensor signal indicative of a parameter of left atrial pressure, wherein the parameter of left atrial pressure is independent of ambient atmospheric pressure.

23. (Original) The method of Claim 1, wherein the step of generating a sensor signal occurs during an interval.

24. (Original) The method of Claim 1, wherein the step of generating a sensor signal occurs in response to an event selected from the group consisting of one or more of the following: a detected event, a symptom, and an instruction.

25. (Original) The method of Claim 1, further comprising providing a sensor module, wherein the sensor module comprises a sensor.

26. (Original) The method of Claim 25, wherein step of providing a sensor module comprises providing a sensor module having a cylindrical shape.

27. (Original) The method of Claim 26, wherein the step of providing a sensor module comprises providing a sensor module having a length of about 8 mm, and a diameter of about 3 mm.

28. (Original) The method of Claim 1, wherein said providing at least two treatment signals comprises utilizing a telemetry device.

29. (Original) The method of Claim 28, wherein the step of utilizing a telemetry apparatus comprises utilizing a telemetry apparatus at least partially located within a housing.

30. (Original) The method of Claim 28, further comprising providing a signal processor located within an external device outside of the patient's body.

31. (Original) The method of Claim 30, further comprising providing the signaling device within the external device outside of the patient's body.

32. (Original) The method of Claim 30, wherein the step of utilizing a telemetry device comprises utilizing a telemetry device at least partially contained by the external device.

33. (Original) The method of Claim 32, further comprises the step of providing the signaling device within the external device, wherein the telemetry device is selected from the group consisting of one or more of the following: a personal digital assistant, a computer, a radio frequency telemetry hardware module, and a coil antenna.

34. (Original) The method of Claim 28, wherein the step of utilizing a telemetry device comprises communicating by reflected impedance of radio frequency energy.

35. (Original) The method of Claim 28, wherein the step of utilizing a telemetry device comprises communicating by frequency or amplitude shifting of radio frequency energy.

36. (Original) The method of Claim 1, further comprising providing a data memory.

37. (Original) The method of Claim 1, further comprising providing an external power source.

38. (Original) The method of Claim 37, wherein the step of providing an external power source comprises providing an external power source, wherein the external power source provides power through radio frequency coupling.

39. (Original) The method of Claim 1, further comprising controlling a cardiac rhythm management apparatus at least in part by the sensor signal.

40. (Original) The method of Claim 1, further comprising providing a signal processor, wherein the signal processor comprises a personal digital assistant.

41. (Original) The method of Claim 1, further comprising implanting at least a part of a signal processor within the medical patient.

42. (Original) The method of Claim 1, further comprising providing a signal processor external to the medical patient.

43. (Original) The method of Claim 1, further comprising providing at least one implantable lead, wherein the at least one implantable lead comprises a pacemaker lead.

44. (Original) The method of Claim 1, further comprising providing at least one implantable lead, wherein the at least one implantable lead comprises a defibrillator lead.

45. (Original) The method of Claim 1, further comprising providing at least one implantable lead, wherein the at least one implantable lead carries a lead signal.

46. (Original) The method of Claim 45, wherein the step of providing at least one implantable lead comprises selecting the lead signal from the group consisting of one or more of the following: an electrical signal, a hydraulic signal, an optical signal, and an ultrasonic signal.

47. (Original) The method of Claim 1, further comprising providing at least one implantable lead, wherein the at least one implantable lead communicates the sensor signal to an implantable housing.

48. (Original) The method of Claim 47, wherein the step of providing at least one implantable lead comprises providing at least one implantable lead which conducts said sensor signal and said electrical stimulus.

49. (Original) The method of Claim 1, further comprising providing at least one implantable lead that provides one or more power pulses between an implantable housing and the sensor.

50. (Original) The method of Claim 1, further comprising providing at least one implantable lead that provides a data signal between an implantable housing and a sensor.

51. (Original) The method of Claim 50, wherein the data signal consists of a signal selected from the group consisting of one or more of the following: a pressure signal, a non-pressure sensing signal, a pacing signal and a programming signal.

52. (Original) The method of Claim 1, further comprising providing a personal digital assistant, wherein the personal digital assistant comprises the signaling device.

53. (Original) The method of Claim 52, further comprising providing a text or graphics display.

54. (Original) The method of Claim 1, wherein the step of generating a processor output indicative of a treatment to a signaling device comprises generating a processor output indicative of a treatment to a signaling device, wherein the signaling device is selected from the group consisting of one or more of the following: an electrical buzzer, an alarm, and a telephone.

55. (Original) The method of Claim 1, further comprising providing at least one anchor.

56. (Original) The method of Claim 1, further comprising providing an automated therapy device.

57. (Original) The method of Claim 56, wherein the step of providing an automated therapy device comprises providing an automated therapy device which is selected from the group consisting of one or more of the following: a dynamic prescription, drug delivery unit, and a cardiac rhythm management method

58. (Original) The method of Claim 56, further comprising controlling the AV interval of a dual chamber pacemaker with the automated therapy device.

59. (Original) The method of Claim 56, further comprising controlling the automated therapy device at least partially based upon parameters indicative of congestive heart failure.

60. (Original) The method of Claim 56, further comprising controlling the automated therapy device at least partially based upon parameters indicative of atrial fibrillation.

61. (Original) The method of Claim 1, further comprising providing a signal processor operable to generate said processor output based at least in part on a physician's dynamic prescription, said dynamic prescription comprising at least two treatment instructions corresponding to at least two physiological conditions.

62. (Original) The method of Claim 61, further comprising providing a physician workstation configured to receive and store the dynamic prescription.

63. (Original) The method of Claim 62, further comprising providing an interface for communicating said stored dynamic prescription from said physician workstation to said signal processor.

64. (Original) The method of Claim 1, wherein said step of providing at least two treatment signals comprises providing a patient instruction.

65. (Original) The method of Claim 1, wherein said step of providing at least two treatment signals is based at least in part on two or more physician instructions.

66. (Original) The method of Claim 1, further comprising providing said at least two treatment signals to a user.

67. (Original) The method of Claim 1, wherein said treating cardiovascular disease comprises treating congestive heart failure.

68. (Original) A method of treating cardiovascular disease in a medical patient, comprising:

generating a sensor signal indicative of a fluid pressure within the heart;

delivering an electrical stimulus to a location in the heart, said electrical stimulus delivered based at least in part on said sensor signal;

providing a processor output indicative of a treatment, wherein said processor output is based at least in part on the sensor signal; and

providing at least two treatment signals to said medical patient,

wherein the at least two treatment signals are distinguishable from one another by the patient; and

wherein the at least two treatment signals are based at least in part on said processor output.

69. (Original) A method of treating cardiovascular disease in a medical patient, comprising:

generating a sensor signal indicative of a fluid pressure within a left atrium of a heart;

transmitting said sensor signal using an internal telemetry apparatus to an external telemetry device;

providing said sensor signal from said external telemetry device to a signal processor;

processing said sensor signal to generate a treatment signal; and

communicating said treatment signal to said medical patient by providing at least two signals to said medical patient.

70. (Original) A method of determining fluid pressure within the left atrium of a medical patient's heart, comprising:

obtaining a sensor signal from said one or more implanted sensors in a medical patient by telemetry through the patient's skin;

obtaining the atmospheric pressure; and

determining an adjusted pressure signal based at least in part upon the sensor signal and the obtained atmospheric pressure, wherein the adjusted pressure signal substantially indicates the fluid pressure within the left atrium of the heart relative to the atmospheric pressure.

71. (Original) A method of treating cardiovascular disease in a medical patient, comprising:

generating a first sensor signal indicative of a fluid pressure within a left atrium of a heart;

generating a second signal indicative of a physiological parameter;

delivering an electrical stimulus to the patient, said electrical stimulus delivered based at least in part on said first sensor signal;

generating a processor output indicative of a treatment to a signaling device, wherein said processor output is based at least in part on the first sensor signal; and

providing at least two treatment signals to said medical patient,

wherein each treatment signal is distinguishable from one another by the patient;

wherein each treatment signals is indicative of a therapeutic treatment; and

wherein each treatment signal is based at least in part on said processor output.

72-74. (Canceled)

75. (Currently amended) A method for treating cardiovascular disease in a medical patient, the method comprising: ~~The method of Claim 74~~

generating a pressure signal indicative of a fluid pressure within a heart;

communicating said pressure signal to location outside of said medical patient;

generating a processor output indicative of a therapeutic treatment, said processor output based at least in part on the pressure signal; and

communicating the processor output to the medical patient, wherein the step of generating a sensor signal further comprises generating a sensor signal indicative of a left atrial pressure.

76. (Currently amended) A method for treating cardiovascular disease in a medical patient, the method comprising: ~~The method of Claim 74~~

generating a pressure signal indicative of a fluid pressure within a heart;

communicating said pressure signal to location outside of said medical patient;

generating a processor output indicative of a therapeutic treatment, said processor output based at least in part on the pressure signal; and

communicating the processor output to the medical patient, wherein the step of generating a sensor signal further comprises generating a sensor signal indicative of a parameter of a left atrial pressure.

77. (Original) The method of Claim 76, wherein the step of generating a sensor signal indicative of a parameter of left atrial pressure comprises generating a sensor signal

indicative of a parameter of left atrial pressure, wherein the parameter of left atrial pressure is selected from the group consisting of one or more of the following: mean left atrial pressure, temporally filtered left atrial pressure, heart rate, respiratory variation of left atrial pressure, and respiration rate.

78. (Original) The method of Claim 76, wherein the step of generating a sensor signal indicative of a parameter of left atrial pressure comprises generating a sensor signal indicative of a parameter of left atrial pressure, wherein the parameter of left atrial pressure is based upon at least one wave selected from the group consisting of one or more of the following: an a wave, a v wave, and a c wave.

79. (Original) The method of Claim 76, wherein the step of generating a sensor signal indicative of a parameter of left atrial pressure comprises generating a sensor signal indicative of a parameter of left atrial pressure, wherein the parameter is selected from the group consisting of one or more of the following: a wave amplitude, a waveform rate of ascent, a waveform rate of descent, timing of a wave feature with respect to a cardiac cycle, timing of a wave feature with respect to another wave feature, time difference between an a wave and a c wave, time difference between an a wave and a v wave, and time difference between a v wave and a c wave.

80. (Original) The method of Claim 76, wherein the step of generating a sensor signal indicative of a parameter of left atrial pressure comprises generating a sensor signal indicative of a parameter of left atrial pressure, wherein the parameter is determined based upon at least one descent selected from the group consisting of one or more of the following: an x descent, an x' descent, and a y descent.

81. (Original) The method of Claim 76, wherein the step of generating a sensor signal indicative of a parameter of left atrial pressure comprises generating a sensor signal indicative of a parameter of left atrial pressure, wherein the parameter is determined based upon a parameter signal selected from the group consisting of one or more of the following: a descent amplitude, a descent rate of ascent, a descent rate of descent, timing of a descent feature with respect to a cardiac cycle, timing of a descent feature with respect to another wave feature, time difference between an x descent and an x' descent, time difference between an x descent and a y descent, and time difference between an x' descent and a y descent.

82. (Original) A method for treating cardiovascular disease in a medical patient, the method comprising:

generating a sensor signal indicative of a fluid pressure within the left atrium of a heart;

communicating said sensor signal to an external telemetry apparatus;

generating a processor output indicative of an appropriate therapeutic treatment based at least in part on the sensor signal; and

signaling a patient with a patient signaling device operable to generate at least two treatment signals distinguishable from one another by the patient, each treatment signal indicative of a therapeutic treatment, wherein each treatment signal is based at least in part on the processor output.

83. (Original) The method of Claim 82, further comprising providing a cardiac rhythm management device.

84. (Original) The method of Claim 83, wherein the step of providing a cardiac rhythm management device comprises providing a pacemaker or a defibrillator.

85. (Original) The method of Claim 82, wherein the step of generating a sensor signal comprises generating a pressure signal.

86. (Original) The method of Claim 85, wherein the step of generating a pressure signal comprises generating a pressure signal indicative of a left atrial pressure.

87. (Original) The method of Claim 85, wherein the step of generating a pressure signal comprises generating a parameter of a left atrial pressure.

88. (Original) The method of Claim 87, wherein the step of generating a parameter of left atrial pressure comprises generating a parameter of left atrial pressure selected from the group consisting of one or more of the following: mean left atrial pressure, temporally filtered left atrial pressure, heart rate, respiratory variation of left atrial pressure, and respiration rate.

89. (Original) The method of Claim 87, wherein the step of generating a parameter of left atrial pressure comprises generating a parameter of left atrial pressure, wherein the parameter is determined based upon at least one wave selected from the group consisting of one or more of the following: an a wave, a v wave, and a c wave.

90. (Original) The method of Claim 87, wherein the step of generating a parameter of left atrial pressure comprises generating a parameter of left atrial pressure, wherein the parameter is determined based upon a parameter signal selected from the group consisting of one or more of the following: a wave amplitude, a waveform rate of ascent, a waveform rate of descent, timing of a wave feature with respect to a cardiac cycle, timing of a wave feature with respect to another wave feature, time difference between an a wave and a c wave, time difference between an a wave and a v wave, and time difference between a v wave and a c wave.

91. (Original) The method of Claim 87, wherein the step of generating a parameter of left atrial pressure comprises generating a parameter of left atrial pressure, wherein the parameter is determined based upon at least one descent selected from the group consisting of one or more of the following: an x descent, an x' descent, and a y descent.

92. (Original) The method of Claim 87, wherein the step of generating a parameter of left atrial pressure comprises generating a parameter of left atrial pressure, wherein the parameter is determined based upon a parameter signal selected from the group consisting of one or more of the following: a descent amplitude, a descent rate of ascent, a descent rate of descent, timing of a descent feature with respect to a cardiac cycle, timing of a descent feature with respect to another wave feature, time difference between an x descent and an x' descent, time difference between an x descent and a y descent, and time difference between an x' descent and a y descent.

93. (Original) The method of Claim 82, further comprising providing an implantable flexible lead.

94. (Original) The method of Claim 93, wherein said implantable flexible lead is upgradable.

95. (Original) The apparatus of Claim 93, wherein said implantable flexible lead is configured to operate in a plurality of configurations.

96. (Original) The apparatus of Claim 93, wherein said implantable flexible lead is configured to operate in a telemetry configuration.

97. (Original) The apparatus of Claim 93, wherein said implantable flexible lead is configured to operate in a telemetry configuration and a cardiac rhythm management configuration.

98. (Original) The apparatus of Claim 93, wherein said implantable flexible lead is configured to operate in a telemetry configuration and a therapy configuration.

99. (Original) The apparatus of Claim 93, wherein said implantable flexible lead comprises electronics that automatically sense the appropriate configuration.